

REMARKS

Claims 1 and 5 are pending in the instant application.

Reconsideration is respectfully requested in light of the following remarks.

35 U.S.C. § 103 Rejection

Claims 1 and 5 stand rejected under 35 U.S.C. § 103(a) for purported obviousness over WO 95/33787 as evidenced by United States Patent No. 5,935,700 to Enomoto et al. in view of United States Patent No. 5,316,714 to Yoneda et al. (hereinafter "Yoneda"). Applicants respectfully request reconsideration.

The present invention is directed to an inorganic compound sol including a dispersion medium having a dielectric constant of from 10 to 85 and, dispersed therein, inorganic compound particulates having average particle size from about 11 to 30 nm whose surface has been modified by an organic compound selected from vinylsilane compounds, acrylsilane compounds, epoxysilane compounds, aminosilane compounds, γ -mercaptopropyltrimethoxysilane and γ -chloropropyltrimethoxysilane, exhibiting a molecular polarizability of from 2×10^{-40} to $850 \times 10^{-40} \text{ C}^2\text{m}^2\text{J}^{-1}$. The organic compound particulates are composite oxide particulates composed of silica and at least one inorganic oxide other than silica, with the weight ratio of silica to the at least one inorganic oxide other than silica being 3 to 500. The silica containing composite oxides are produced by simultaneously adding an alkali metal silicate and an alkali soluble inorganic oxide to an alkali aqueous solution. The inorganic

compound sol is stable in the presence of species selected from the group consisting of ionic components, salts and surfactants.

WO 95/33787 discloses a thermoplastic that contains specified fine particles of composite oxide including silica, alkali metal oxide and at least one inorganic oxide other than silica.

Yoneda discloses a monodispersed glycol suspension that includes a monodispersed suspension in a glycol of spherical fine particles of an amorphous inorganic oxide containing glycol bonded to its surface.

The Examiner indicates that the comparative data submitted by Applicants does not show criticality for the use of different silanes having the molecular polarizability in glycol suspensions. The Examiner goes on to state that a skilled artisan would have reasonably expected the formation of glycol sols surface modified with the silanes of WO 95/33787 to have produced stable sols upon reading Enomoto in view of Yoneda.

Applicants submit herewith a Declaration under 37 C.F.R. § 1.132 by Mr. Hiroyasu Nishida, one of the present inventors. In the Declaration, Mr. Nishida demonstrates that the use of silanes disclosed in Enomoto, which do not fall within the claimed molecular polarizability range, do not necessarily provide the excellent stability in sol or solution, in the presence of acids, alkalis or surfactants as those presently claimed.

More particularly, the comparative samples in the Declaration gelled within 19 days (tetraethoxysilane), 31 days (3-(vinylbenzylaminopropyl) trimethoxysilane), and 3 days (sodium dodecylbenzene sulfonate), whereas the

inorganic compound sols according to the invention in examples 1-12 of the specification (page 23) were stable for at least six months. Clearly, based on the combination of WO 95/33787, Enomoto and Yoneda, there is no guidance to direct one skilled in the presently claimed invention.

In the present invention, SiO₂ rich composite particles are modified using specific organosilanes exhibiting a specific molecular polarizability. There is no disclosure in the combination of WO 95/33787, Enomoto and Yoneda to suggest such sols.

As described in WO 95/33787, simply modifying particulates using common modifiers does not necessarily provide particulates that have excellent stability in sol or solution in the presence of acids, alkalis or surfactants.

Further, WO 95/33787 does not teach the particular silane coupling agent of the present invention. Yoneda discloses numerous coupling agents including those used in the present invention. However, Yoneda does not teach or suggest the specific selection of the coupling agent having the claimed molecular polarizability.

The present SiO₂ composite particles have desirable affinity with the dispersion media resulting in excellent dispersion stability of the particles in the dispersion media as exemplified by the nonoccurrence of particle aggregation and gelation (again refer to examples 1-12, page 23 of the specification).

Further, even if an organic or inorganic acid or a salt thereof is present in the inorganic compound sol, the SiO₂ composite particles do not aggregate with each other and gelation does not occur.

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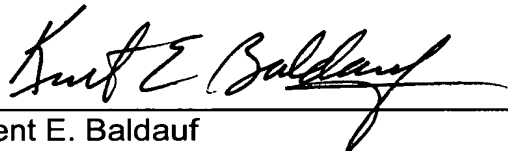
There is no disclosure or motivation in any combination of WO 95/33787, Enomoto and Yoneda suggesting these results.

For the reasons stated above, the rejection of claims 1 and 5 under 35 U.S.C. § 103(a) over WO 95/33787 in view of Yoneda should be withdrawn.

CONCLUSION

In view of the above, it is submitted that the claims are patentable over the prior art of record and are in condition for allowance. Reconsideration of the rejections and allowance of claims 1 and 5 are respectfully requested.

Respectfully submitted,

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